

ABSTRACT OF THE DISCLOSURE

A film forming apparatus includes a silicon film forming vacuum chamber for forming a crystalline silicon film on a substrate; a film forming device provided for the vacuum chamber for forming a pre-film of the crystalline silicon film on a target surface of the substrate; and an energy beam irradiating device provided for the vacuum chamber for irradiating the pre-film with an energy beam for crystallizing the pre-film. This film forming apparatus produce a crystalline silicon film having a good quality as a semiconductor film for a TFT or the like with good productivity.